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EXAMINER

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ART UNIT PAPER NUMBER

1775

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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Paper No. 03102004

Application Number: 09/964,544
Filing Date: September 28, 2001
Appellant(s): CHOW ET AL.

John Karasek
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 1-6-04.

(1) Real Party in Interest

A statement identifying the real party in interest is contained in the brief.

(2) *Related Appeals and Interferences*

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

(3) *Status of Claims*

The statement of the status of the claims contained in the brief is incorrect.

A correct statement of the status of the claims is as follows:

This appeal involves claims 19-22 and 24-25.

Claims 1-18 and 23 have been canceled.

(4) *Status of Amendments After Final*

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) *Summary of Invention*

The summary of invention contained in the brief is deficient because appellant failed to recite that the coatings are devoid of splat microstructures greater than several microns thick.

(6) *Issues*

The appellant's statement of the issues in the brief is correct.

(7) *Grouping of Claims*

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The rejection of claims 19-22 and 24-25 stand or fall together because appellant's brief does not include reasons in support of the statement that this grouping of claims does not stand or fall together. See 37 CFR 1.192(c)(7).

(8) *Claims Appealed*

The copy of the appealed claims contained in the Appendix to the brief is correct.

(9) *Prior Art of Record*

5,997,956

HUNT

12-1999

(10) *Grounds of Rejection*

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC 102

Claims 19-20 are rejected under 35 U.S.C. 102(e) as anticipated Hunt et al. (5,997,956).

Hunt teaches thin films comprising nanostructured material (col. 11, ln. 52-65) having particle sizes of less than 100 nm (col. 24, ln. 21-22). Hunt further teaches that the material may be alumina, zirconia, or yttria (col. 20, ln. 51-56). Hunt also teaches that the films are formed by plasma spraying solution precursors which are very finely atomized (col 5, ln. 17-34). While Hunt is silent to the size of splat microstructures within the film, it is the position of the Examiner that spraying very finely atomized precursors would have resulted in a film devoid of splat microstructures, particularly given that Hunt teaches that the maximum droplet size of said precursors is further taught to be less than 2 μ m (col. 8, ln. 28-30). The Patent and Trademark Office can require appellant to

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prove that prior art products do not necessarily or inherently possess characteristics of claimed products where claimed and prior art products are identical or substantially identical, or are produced by identical or substantially identical processes; burden of proof is on appellant where rejection based on inherency under 35 U.S.C. 102 or on prima facie obviousness under 35 U.S.C. 103, jointly or alternatively, and Patent and Trademark Offices inability to manufacture products or to obtain and compare prior art products evidences fairness of this rejection, *In re Best, Bolton, and Shaw*, 195 U.S.P.Q. 431 (CCPA 1977).

Regarding claims 20, Hunt teaches that the nanostructure may be multilayered (col. 16, ln. 28-31 and col. 23, ln. 37-63).

Claim Rejections - 35 USC 103

Claims 21-22 and 24-25 are rejected under 35 U.S.C. 103(a) as obvious over Hunt et al. (5,997,956).

Hunt teaches that the nanostructure may be multilayered and graded (col. 16, ln. 28-31); however it does not exemplify an embodiment that is both multilayered and graded. It would have been obvious to one of ordinary skill in the art at the time of the invention to have formed a multilayer nanostructure which was graded since it is specifically suggested as a suitable structure by the reference.

Regarding the limitation in claims 21 and 25 that the grading is fine scale grading, compositionally and microstructurally. Since the structure is a nanostructure, it would be necessary to have any grading be fine scale.

Regarding the limitation in claims 22 and 24 that the layers are integrated by grading and have continuous interfaces, the mere recitation of grading by Hunt is a teaching that the layers are integrated.

(11) Response to Argument

(iii) The examiner disagrees with appellant's arguments with respect to the rejection of claims 19 and 20 on 35 U.S.C. 102(e) as being anticipated by the Hunt reference. Appellant asserts that the rejections should not apply since the claims are drawn to coatings made by thermal spraying solution precursors and are devoid of splat microstructures greater than several microns thick whereas Hunt discloses powder formation and thin film deposition by vapor deposition.

It is unclear as to which portion of Hunt appellant is relying for the teachings of powder formation and thin film deposition by vapor deposition; however the claims are drawn to the article, not the method of making. When there is a substantially similar product, as in the applied prior art, the burden of proof is shifted to the applicant to establish that their product is patentably distinct not the examiner to show that same process of making, see *In re Brown*, 173 U.S.P.Q. 685, and *In re Fessmann*, 180 U.S.P.Q. 324.

Furthermore, despite appellant's assertions to the contrary, Hunt teaches thin film deposition by the thermal spraying process of plasma spraying (col. 5, ln. 17-18) wherein the spraying solution is made of chemical precursors and is very finely atomized (col. 5, ln. 20-34).

While it is acknowledged that Hunt is silent to the size or presence of splat microstructures within the film, it is the position of the examiner that spraying very

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finely atomized precursors would have resulted in a film devoid of splat microstructures greater than several microns thick. To further support the examiner's position, the examiner cites the disclosure from applicant on the bottom of page 5 of the amendment filed 8-25-03 which states:

From commercial experience, sprayable powders need to be of a size of about 30 microns or larger for efficient deposition and that as a result, these larger diameter agglomerates produce longer splat microstructures in the coating.

However, Hunt teaches that the maximum droplet size of said precursors is taught to be less than 2 μm (col. 8, ln. 28-30), significantly less than the 30 micron or greater sized particles stated by Appellant as sizes which produce the undesirable splat microstructures. It is unclear how droplets which are less than 2 μm could result in the formation of a splat microstructure greater than several microns, especially greater than 10 microns in thickness. Appellant has not met the burden of proof showing how the claimed product is patentably distinct

(iv) The examiner disagree's with appellant's arguments with respect to the rejection of claims 19-22 and 24-25 on 35 U.S.C. 103(a) as being obvious over the Hunt reference. Appellant argues that Hunt discloses powder formation and thin film deposition by vapor deposition, which supposedly could not make the claimed coating devoid of splat microstructures greater than several microns thick obvious. Appellant references a portion of the specification which recites the use of powder agglomerate feedstock has limitations and problems. As was stated previously, Hunt teaches the use of spraying liquid containing very finely


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atomized solution precursors (col 5, ln. 17-34), therefore the reference from the specification which teaches the deficiencies inherent with the use of (emphasis added) powder agglomerate feedstock, has no relevance to the prior art of Hunt which uses liquid solutions.

As was stated above, since Hunt uses very finely atomized liquid solutions in a thermal spraying process, it is believed that the coating formed therefrom would be devoid of splat microstructures greater than several microns thick.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,


Jason Savage
March 10, 2004


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